

CHARLES C. BEERS.

Improvement in Apparatus for Carbureting Air.

No. 113,968.

Fig. 1.

Patented April 25, 1871.

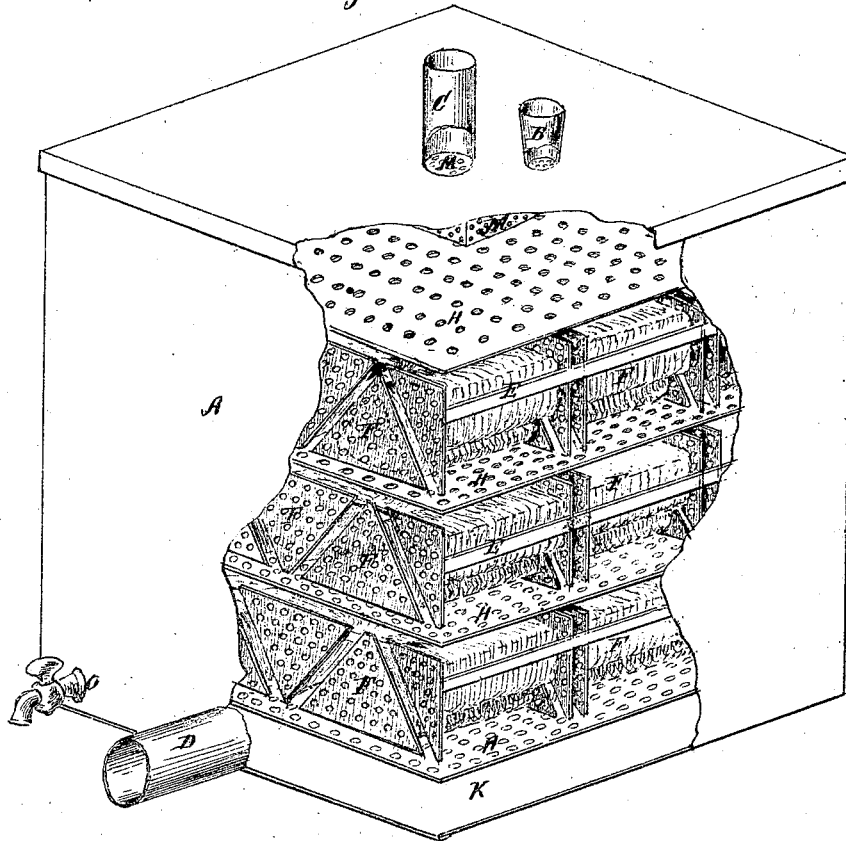
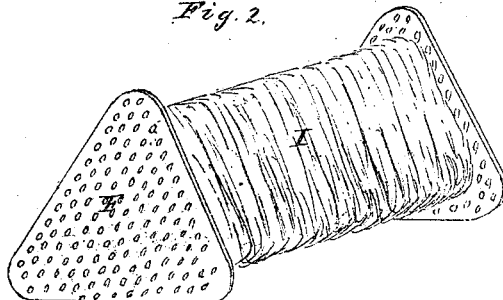


Fig. 2.



Witnesses.

C. F. Brown,
L. B. Wright.

Inventor.

Charles C. Beers,
by Carroll D. Wright
Atty.

UNITED STATES PATENT OFFICE.

CHARLES C. BEERS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. **113,968**, dated April 25, 1871.

To all whom it may concern:

Be it known that I, CHARLES C. BEERS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Air-Carburetors, of which the following is a specification.

Figure 1 is a perspective view of my invention, and Fig. 2 a similar view of one of the evaporators.

The object of this invention is to provide a simple mechanism for manufacturing illuminating-gas from the volatile oil called "gasoline;" and it consists of evaporators of perforated sheet metal or wire-gauze, triangular in cross-section, on which is wound cotton wicking or other like material for absorbent, and of the combination with such evaporators, when arranged in horizontal layers, of removable horizontal partitions of wire-gauze or perforated sheet metal.

In the drawings, A represents the chamber, which has opening into the top two tubes, B C, and a tube, D, opening into the bottom.

E E E represent frames, composed of evaporators F, suitably attached together. Said frames are arranged horizontally in the chamber A, and separated from each other by the perforated partitions H H H.

The evaporators F are composed of sheets of perforated metal or wire-gauze arranged prismatically, and having triangular-shaped ends F' of the same material. The ends F' project beyond the sides of the evaporators, and form flanges or guards between which is wound cotton wicking or other like porous material, I.

Gasoline is poured through the tube B into the chamber A, and, falling downward through partitions H, is absorbed by the porous covering of the evaporators F, which latter are arranged in such manner as to expose the greatest amount of porous surface to the falling liquid, as shown in Fig. 1—that is, every alternate evaporator is inverted, so as to leave the base upward, while the others have their apices upward, thus rendering it impossible for the gasoline to fall from the top to the bottom of the chamber without encountering some portion of the evaporators F, which absorb the same. Meanwhile a current of air is forced through the tube D by any means suitable and well known, and, passing upward among

the evaporators F, evolves the volatile principle of the gasoline, and, mingling with the same, becomes an excellent illuminating-gas, and passes out through the tube C into any suitable receptacle.

The principal advantage appertaining to this mechanism consists in the large amount of evaporating-surface exposed to the action of the atmospheric current, which remedies an objection which exists in many of the carburetors employing gasoline heretofore used, as the difficulty of obtaining sufficient evaporating-surface and mingling a sufficient quantity of the volatile principle with the air-current renders the product of the operation a heavy and inferior gas, while by my arrangement it will be readily seen that the air circulates freely through the interior of the evaporators F, as well as around the exterior, and consequently acts alike on all parts of the saturated fibrous or porous material I. The perforated partitions H, which may consist of wire-gauze, are safeguards against combustion on the principle of the Davy lamp, and they further seem to equalize the percolation of the gasoline down through the series of absorbents or evaporators, as the oil is distributed over the surfaces of the perforated partitions, and is thus retarded in its downward course. The space immediately beneath and around the tubes B C is protected by the gauze chamber M. This protection, on well-known principles, secures my carburetor from the ordinary chances of explosion.

So far as demonstrated, all the gasoline poured in at B becomes absorbed before any of it can reach the space K at the bottom. By so large an evaporating-surface as I present, and of such continuous absorption by there being no direct course from top to bottom, all the oil—residuum and all—is thoroughly utilized, none reaching the space K; but should any reach this space it can be easily drawn off by a cock, O.

It will be seen that I utilize all the gasoline that enters the carburetor and all the air, for the full force of the current of air, striking the lower perforated partition, H, meets, as it drives up through the evaporators, the whole evaporated surface of the oil, not in a compact form, but in its absorbed and partially-evaporated condition.

I lay no claim to the process of making illuminating-gas by the mixture of the volatile products of gasoline or oil and atmospheric air, as this is common and well known, and various constructions and arrangements of evaporators and absorbents have been used; but I am not aware of any construction presenting to so large an extent the advantages I claim to result from my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The hollow evaporators F, when made triangular in cross-section and provided at their ends with flanges, and combined with fibrous material wound around the evapora-

tors between the flanges, the form of the evaporators admitting of the inclined faces of one projecting over the inclined faces of the adjacent ones when arranged in a horizontal series in which the alternate evaporators are inverted.

2. The combination of the evaporators arranged in horizontal series with the perforated partitions H, in the manner described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES C. BEERS.

Witnesses:

CARROLL D. WRIGHT,
CHARLES F. BROWN.